CLAIMS

1. A recoil starter comprising:

a winding housing including:

a central axis;

an inner surface; and

a spring tab spaced from the central axis and extending from the inner surface;

a reel rotatably coupled to the winding housing for rotation about the central axis;

a spirally wound spring including:

an outer end portion coupled to the reel;

a coiled portion extending around the central axis;

an inner end portion having:

a guide portion that extends between the central axis and the spring tab; and

a hook portion that extends radially outwardly from the central axis and that engages the spring tab to restrict movement of the inner end with respect to the winding housing.

2. The recoil starter of claim 1, wherein the inner end portion further comprises a transition portion disposed between the coiled portion and the guide portion.

3. The recoil starter of claim 2, wherein a plane extending through the central axis intersects the guide portion and the transition portion.

4. The recoil starter of claim 1, wherein the hook portion comprises:

a tab portion including a terminal end of the spring and positioned radially outwardly with respect to the spring tab; and

a generally U-shaped bend portion that extends from the guide portion to the tab portion and receives the spring tab.

5. The recoil starter of claim 1, wherein the winding housing includes a central projection that intersects the central axis, and wherein the reel is rotatably coupled to the central projection.

6. The recoil starter of claim 1, wherein the reel comprises a circumferential wall that is substantially concentric to the central axis and defines an opening, and wherein the outer end portion comprises a second hook portion received by the opening to couple the outer end portion to the reel.

7. The recoil starter of claim 6, wherein the winding housing includes a central projection that intersects the central axis, wherein the circumferential wall and the central projection cooperate to define a spring chamber, and wherein the spring chamber is substantially annular.

8. The recoil starter of claim 1, wherein the winding housing includes a sidewall at least partially surrounding the reel.

9. The recoil starter of claim 1, wherein the spring comprises a generally spirally wound elongated strip having a first surface and a second surface, wherein in the coiled portion the first surface faces radially outwardly and the second surface faces radially inwardly, and wherein in the hook portion the first surface faces the spring tab.

10. A recoil starter comprising:

a winding housing including:

a central axis;

an inner surface; and

a spring tab spaced from the central axis and extending from the first surface;

a reel rotatably coupled to the winding housing for rotation about the central axis;

a spring including:

an elongated strip having a first surface and a second surface;

an outer end portion coupled to the reel;

a coiled portion extending around the central axis such that the first surface faces radially outwardly and the second surface faces radially inwardly with respect to the central axis; and

an inner end portion including a hook portion formed such that the first surface faces the spring tab.

11. The recoil starter of claim 10, wherein the inner end portion further comprises a guide portion that extends between the central axis and the spring tab, and wherein in the guide portion the first surface faces the spring tab and the second surface faces the central axis.

12. The recoil starter of claim 11, wherein the inner end portion further comprises a transition portion extending between the coiled portion and the guide portion.

13. The recoil starter of claim 12, wherein a plane extending through the central axis intersects the guide portion and the transition portion.

14. The recoil starter of claim 10, wherein the hook portion comprises

a tab portion including a terminal end of the spring and positioned radially outwardly with respect to the spring tab; and

a generally U-shaped bend portion that receives the spring tab.

15. The recoil starter of claim 10, wherein the reel comprises a circumferential wall that is substantially concentric to the axis and defines an opening, and wherein the outer end portion comprises a second hook portion received by the opening to couple the outer end portion to the reel.

16. The recoil starter of claim 15, wherein the winding housing includes a central projection that intersects the central axis, wherein the circumferential wall and the central projection cooperate to define a spring chamber, and wherein the spring chamber is substantially annular.

17. A method for making a recoil starter, the method comprising:

providing a winding housing having an inner surface and a central axis and including a spring tab spaced from the central axis and extending from the inner surface;

providing a reel rotatably coupled to the winding housing for rotation about the axis, the reel and winding housing cooperating to at least partially define a spring chamber;

forming a spirally wound spring from an elongated strip of spring material, including:

forming an outer coupling portion;

forming a coiled portion continuous with the outer coupling portion and extending around the central axis;

forming a transition portion that extends radially inwardly away from the coiled portion; and

forming an inner end portion extending from the transition portion, including:

forming a guide portion that extends from the transition portion; and

forming an inner hook portion that extends radially away from the central axis;

coupling the outer coupling portion to the reel;

positioning the coiled portion inside the spring chamber;

positioning the guide portion between the central projection and the spring tab; and

positioning the inner hook portion to receive the spring tab to restrict movement of the inner end with respect to the winding housing when the reel is rotated with respect to the winding housing.

18. The method of claim 17, wherein forming the inner hook portion includes forming a tab portion that defines a terminal end of the spring, and forming a generally U-shaped bend portion between the guide portion and the tab portion.

19. The method of claim 18, wherein positioning the inner hook portion to receive the spring tab includes positioning the tab portion radially outwardly with respect to the spring tab and engaging the U-shaped bend portion with the spring tab.

20. The method of claim 17, further comprising forming an opening in the reel,

wherein forming the outer coupling portion comprises forming an outer hook portion; and

wherein coupling the outer coupling portion to the reel comprises extending the outer hook portion through the opening in the reel.